UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

THE DIRECTOR

March 12, 2004

Mr. David E. Frulla
Mr. Shaun M. Gehan
Mr. Andrew D. Herman
Brand and Frulla
923 Fifteenth Street, N.W.
Washington, D.C. 20005

Dear Messrs. Frulla, Gehan, and Herman:

This letter responds to your appeal ("Appeal"), on behalf of The Associated Fisheries of Maine, Inc. and the Trawlers Survival Fund, of the December 15, 2003, Denial of the Request for Correction ("Initial Decision") of the revised biological reference points for the northeast multispecies stock complex ("New England groundfish") contained in the draft document for Amendment 13 to the Northeast Multispecies Fishery Management Plan ("Draft Amendment 13"). My office has completed its review of your appeal and has the following response:

Summary of Response

Your appeal raised six issues:

1. Independence of one member of the peer review panel.
2. "Usefulness" of the reference points.
3. Whether the National Oceanic and Atmospheric Administration (NOAA) considered the ASPM approach suggested by Dr. Butterworth.
4. Whether the "best available science" must be unique to the exclusion of all other approaches.
5. The meaning of "best available science" as it relates to the evaluation of Dr. Butterworth's method.
6. Whether NOAA has been open to investigation of Dr. Butterworth's work.

Upon review, your arguments have been found without merit, for the reasons stated below.

Detailed Response: Issues Addressed in the Appeal

Your Appeal questions the independence of one member of the peer review panel. This is an issue you did not raise in your initial request for correction, even though the request in fact relied on selected observations of the peer review panel and on the Peer Review Report to challenge the reference points. As noted in the Initial Decision, the peer review conducted in this instance was

conducted with independence and objectivity under proper and clearly-articulated procedures. The decision to classify Dr. McAllister as an "independent" reviewer was made by the Center for Independent Experts (CIE). NOAA was not involved in the selection process, which is normal practice when using the CIE. We note that the independence of the other four reviewers was not questioned and their comments are also supportive of the Northeast Fisheries Science Center (NEFSC) results.

On your second point, regarding the usefulness of the reference points, we note that your argument is predicated on the condition that the reference points provided by NEFSC are "potentially badly wrong," which pertains to accuracy, an element of the *objectivity* criterion, rather than the *usefulness* criterion. Nevertheless, there is no evidence that the reference points are wrong. The reference points given in the report of the "Working Group on Re-Evaluation of Biological Reference Points for New England Groundfish" (March 2002) simply differ from those provided by Dr. Butterworth. Several members of the peer review panel chaired by Dr. Andrew Payne in February 2003 commented on the results of the age-structured production model (ASPM) method presented by Dr. Butterworth. For example Dr. Andrew Payne summarized comments from several reviewers, including Dr. Robin Cook, as: *"The analyses (Butterworth et al.) were not intended to be definitive, and some sample runs were made during the meeting for illustrative purposes."* and *"One main point of concern to the panel was that the ASPM seems to be overly sensitive to the assumptions made."* The peer review panel members distinguished between the ASPM method on the one hand and the assumptions involved and the manner in which the model was formulated on the other.

Peer review panel members concluded that there was insufficient information in Dr. Butterworth's presentation to adequately determine how the model was formulated and, therefore, saw no basis for comparing the ASPM results with those provided by the NEFSC. For example, Dr. Ewen Bell noted: *"Any stock assessment model is just that - a model of the system and the results are conditioned on the assumptions made by the model."* and *"The large range of results for stock size and subsequent reference points obtained from ASPM is of concern in that the model appears to be very sensitive to the assumptions made."* Finally, we note that the Petitioners acknowledge the preliminary nature of the ASPM results: *"Dr. Butterworth performed the analyses under the ASPM approach for the two cod stocks as an illustration of that model's potential utility."* (Petitioners' Request for Correction of Information, Page 5.)

Furthermore, regarding the accuracy of the reference points, the peer review panel agreed with the adaptive approach for management originally suggested by NEFSC, whereby any potential incorrect estimates of B_{msy} would be discovered and modified at several points during the stock rebuilding period.

There are many "viable" approaches and methods for conducting stock assessments and deriving biological reference points. The ASPM method employed by Dr. Butterworth is just one of a family of forward projection models available today. It is not a question of whether one model is "demonstrably more correct," but rather how a particular model is configured for a given

assessment that determines whether the results are "viable." The peer review looked at the underlying assumptions, input data, and configuration of the NEFSC assessments in order to determine whether the results are useful for providing management advice. As yet, the results of the ASPM method prepared by Dr. Butterworth have not been subjected to this type of assessment. To support this request for correction and appeal, the burden of showing that the ASPM method is superior to those promoted by NEFSC for Amendment 13 lies with the requester.

As to your third point, that NOAA did not consider the ASPM approach suggested by Dr. Butterworth, the published reference points were developed by the Working Group on Re-Evaluation of Biological Reference Points for New England Groundfish which met in March 2002. The Working Group evaluated a number of approaches and concluded that the models eventually employed for each stock were most appropriate based on available data and individual stock dynamics, and how well the data and stock dynamics met the assumptions of the selected model.

Your fourth point argues that "best available science" must be unique to the exclusion of all other approaches. This is a misperception of the meaning of "best available science," and, in fact, members of the peer review panel did comment on whether the ASPM results (as opposed to the ASPM method) were sufficiently documented to be considered as a basis for providing management advice. Peer review panel members expressed concern over the lack of sufficient documentation of the ASPM results to view them as "best available scientific information." While reviewers found the Butterworth approach ostensibly sound, the *results* were questionable due to the inputs and statistical assumptions.

Your fifth point also shows a misperception of the meaning of "best available science." The peer reviewers could not evaluate Dr. Butterworth's method because he did not provide sufficient information on his formulation of the ASPM, the data he used as input, and assumptions he was forced to use in order to apply the ASPM method to New England cod stocks. The argument was not whether the ASPM method was equal or superior to the methods supported by NEFSC, the argument was in how the ASPM method was applied for this particular situation.

Your sixth point disputes that NOAA has been open to investigation of Dr. Butterworth's work, but in fact NEFSC has maintained an open dialog with Dr. Butterworth and his assistants, including full disclosure of all data requested by him and several offers for meetings in person. It is more important that Dr. Butterworth submit his work to a peer review body of independent experts, such as the same CIE panel that called for a comparison of his method with the ones adopted for use in Amendment 13 or the Stock Assessment Review Committee (SARC). This will allow a thorough examination of assumptions, input data, and model formulation, rather than a limited discourse responding only to concerns raised by NEFSC scientists. In fact, at its November 2003 meeting in which Mr. Frulla was in attendance, the New England Fishery Management Council passed a motion requesting that such a review take place in the near future:

> ... an assessment update of the groundfish complex will be conducted in 2005 for potential management action in 2006, but will include a full and independent review of Dr. Butterworth's Age-Structured Production Model work. Benchmark assessments, including a review of the status determination criteria, will be conducted in 2008 for implementation in 2009. The assessment update in 2005 will not update the numerical estimates of status determination criteria unless the review of Dr. Butterworth's work justifies reconsideration. Both actions will be subject to peer review by independent scientists.

The issue of formal peer review of the ASPM method is brought up again on page 4 of the 14 January 2004 letter. The fact that the age-structured production model approach is used by assessment scientists around the world, including those at the Northeast Fisheries Science Center, is not the issue. We fully agree that the ASPM method has been subjected to considerable scrutiny worldwide and has been judged to be sound; in fact, the method is included in the latest version of NMFS's Stock Assessment Toolbox, a website providing methods that have undergone scrutiny by the agency and have been approved for use in stock assessments. The real issue is how the method (or any method proposed by anyone outside the established peer review process) is used by Dr. Butterworth to derive results sufficient for providing advice to fishery managers. Each analysis must be judged individually, with particular attention given to model formulation, input data, and ability to meet the model's underlying assumptions. This has not yet occurred for the results presented by Dr. Butterworth for the New England cod stocks.

Conclusion

NOAA does not claim that its model is superior to the exclusion of all other approaches; nor is such a claim necessary to a finding of "best available science." The reference points obtained as a result of the NEFSC modeling efforts have been scrutinized by several panels of internationally recognized experts, who carefully examined the data and the methodology. In their collective judgment, the results reported out of these reviews are of sufficient scientific merit to serve as a basis for providing management advice, and none of the alternatives presented to them provided a higher standard of science or could serve as a basis to challenge the NEFSC results.

Therefore, the Appeal is denied.

Sincerely,

Rebecca Lent

for William Hogarth, Ph.D.
Assistant Administrator
for Fisheries